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EXAMINER	
KRONENTHAL, CRAIG W	
ART UNIT	**PAPER NUMBER**
2623	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/889,475	FURLEY ET AL.	
	Examiner	Art Unit	
	Craig W Kronenthal	2623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1-25* is/are rejected.

7)☐ Claim(s) *10,18,19 and 24* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on *26 January 1999* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3,5*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claim Objections

1. Claim 10 is objected to because of the following informalities:

    - It is believed that on line 3, "calendaring" should be spelled "calendaring".

Appropriate correction is required.

2. Claim 18 is objected to because of the following informalities:

    - On line 1 "plastics" should be replaced with "plastic".

Appropriate correction is required.

3. Claim 19 is objected to because of the following informalities:

    - On line 3 "absorbtion" should be replaced with "absorption".

Appropriate correction is required.

4. Claim 24 is objected to because of the following informalities:

    - On line 5 "date" should be replaced with "data".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claim 10 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claim 10 is dependent on claim 8, which is dependent on claim 1 wherein it is claimed that the identification feature is indistinguishable to the eye and detected through illumination. It is not understood nor explained in the specification how the embossing could be indistinguishable to the eye or detected through illumination.

7. Claim 15 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification does not explain how these printed areas would be selected to enhance the detection of the substrate surface variation during scanning and conversion of the image into image data signals. No criteria are outlined for selecting such areas or for distinguishing more acceptable areas from those less acceptable.

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claim 8 is rejected under 35 U.S.C. 112, second paragraph, because it is written as a method claim, but depends on a substrate from claim 1. It is improper for a method claim to depend on an apparatus claim or vice versa. It is anticipated that in line 1 of the claim "method" would be changed to "substrate".

10. Claims 9 and 10 are rejected under 35 U.S.C. 112, second paragraph, because it is written as a substrate claim, but depends on a method from claim 8. It is improper for an apparatus claim to depend on a method claim or vice versa. However, if claim 8 is corrected then this rejection would be removed.

11. Claims 1 – 25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Specifically claims 1, 19, 24, and 25 are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors. These claims were not separated into steps where they should have been.

12. Claims 13, 14, and 16-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 13 recites the limitation "the pattern" in line 1. There is insufficient antecedent basis for this limitation in the claim. Claim 1 does not mention a "pattern." It is expected that "pattern" would be replaced with "identification features".

Claim 14 recites the limitation "encoded pattern" in line 1. There is insufficient antecedent basis for this limitation in the claim. The term "encoded pattern" was never used in claim 1. It is expected that "encoded pattern" would be replaced with "identification features".

Claim 16 recites the limitation "surface treated substrate" in the preamble in line 1. There is insufficient antecedent basis for this limitation in the claim. Claim 1 mentions a "substrate" only as opposed to a "surface treated substrate". There is no prior indication that the substrate of claim 1 is surface treated. Claim 1 recites a substrate on which a security document is to be printed. However, claim 16 which recites a surface treated substrate cannot depend on claim 1 because it does not further define the scope of claim 1.

Regarding claim 19, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

13. Claim 20 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite in that it fails to point out what is included or excluded by the claim language. The parentheses in the second line are not allowed and therefore the limitations inside the parentheses are not given any weight.

14. Claim 22 is rejected as failing to define the invention in the manner required by 35 U.S.C. 112, second paragraph.

The claim(s) are narrative in form and replete with indefinite and functional or operational language. The structure which goes to make up the device must be clearly and positively specified. The structure must be organized and correlated in such a manner as to present a complete operative device. The claim(s) must be in one sentence form only. Note the format of the claims in the patent(s) cited. It is unclear whether this is an independent or dependent claim. The preamble is different from claim 1 but the language "according to claim 1" indicates its dependency.

15. Claim 24 is rejected under 35 U.S.C. 112, second paragraph, because it is written as a method claim, but depends on a substrate from claim 22. It is improper for a method claim to depend on an apparatus claim or vice versa.

Claim Rejections - 35 USC § 102

16. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an

application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 – 4, 11, 13 – 16, 18, 19, 22, 23, and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by Cyr et al. (P.N. 6,138,913). (hereinafter Cyr)

Regarding Claim 1: Cyr discloses:

A substrate (10) on which a security document is to be printed comprising a plurality of identification features in the surface thereof (col. 4 lines 39-43), which when illuminated and imaged by scanning, produce image data signals in the output of a photoelectric device (col. 6 lines 43-52) characterized in that:

(i) the contrast between the identification features and the remainder of the substrate surface is such that image data signals corresponding to said features are substantially indistinguishable from image data signals relating to the remainder of the substrate surface and/or from background noise signals in the output of the photoelectric device and are thereby indistinguishable by eye; (col. 3 lines 37-39) and

(ii) the features repeat at intervals over at least some of the surface area of the substrate (16), whereby upon validation time or position of signals relating to each feature will bear at least one fixed relationship to signals relating to other of said features, whereby a computing device supplied with the image data signals can be programmed to identify whether feature signals bearing the said

at least one fixed relationship are present in the data, to assist in identifying the imaged document (col. 5 lines 20-27).

Regarding Claim 2: Cyr discloses a substrate according to claim 1, wherein the identification features are repeated at regular intervals (16) (col. 5 lines 20-27). Each line in a bar code (16) represents either a one or a zero. So if two ones or two zeros where repeated then two of the same lines would be repeated at regular intervals. It is inherent in bar codes that lines could be repeated at regular intervals.

Regarding Claim 3: Cyr discloses a substrate according to claim 1, wherein each of the identification features is similar in character to each of the other features in the said surface. Each feature in a bar code (16) is a similar height, color, and intensity. The main difference between lines in a bar code is their thickness and even then they are relatively similar. The bar code (16) disclosed by Cyr would easily blend into the visible writing on the envelope such as a name or address.

Regarding Claim 4: Cyr discloses a substrate according to claim 1, wherein the spacing of identification features is such as to be constant in one direction only or varied according to a special, known pattern, and similar or different regular spacings are selected for features in another direction bearing a particular spatial relationship relative to the said first direction, for example perpendicular to said one direction. In Figure 1 the bar code (16) is composed of vertical lines parallel

to one another but spaced apart by a known pattern in a direction from left to right.

Regarding Claim 11: Cyr discloses a substrate according to claim 1, wherein two or more different encoding techniques are combined in the substrate (col. 5 lines 18-20). Cyr suggests that any combination of bar codes, symbols, and alpha-numeric codes, which are different coding techniques, could be used on one substrate.

Regarding Claim 13: Cyr discloses a substrate according to claim 1, wherein the features are encoded to produce multiple iterations of a code on the substrate (16). A bar code as explained by Cyr is a combination of black bars and white spaces representing alpha-numeric information. So if two or more of any letter, number, or other character were formed then that would mean the combination of bars and spaces resulting in that character would have to be iterated. The number of iterations then would be equivalent to the number of characters included in the code.

Regarding Claim 14: Cyr discloses a substrate according to claim 1, wherein the identification features extend over selected areas which align with particular printed areas of the substrate (col. 5 lines 13-17). Cyr explains that even though Figure 1 shows the bar code in the lower right hand corner that it could be anywhere on the substrate including where writing would be placed on top.

Therefore, Cyr maintains the possibility that the identification features could align with other writing or printing.

Regarding Claim 15: Cyr discloses a substrate according to claim 14, wherein the printed areas are such as to enhance the detection of the substrate surface variation during scanning and conversion of the image into image data signals (col. 5 lines 31-37). Cyr suggests placing the bar code (16) on the inside of the envelope (10) in order to protect it, so that it may be read more accurately. Cyr is concerned that the bar code will receive too much wear over time and therefore determines its position based on the area where it would receive the least wear thereby enhancing its detection.

Regarding Claim 16: Cyr discloses a surface treated substrate in accordance with claim 1, having any lighter and darker regions (16) visible in the surface of a treated sheet of substrate when illuminated for scanning, but not visible to the eye (col. 6 lines 43-52). The bar code is invisible as explained regarding claim 1 until it is excited by a light source at which point the black bars separated by the white intervals can be seen.

Regarding Claim 18: Cyr discloses a substrate according to claim 16, comprising paper or plastic material (col. 5 lines 40-56) mixed with a resin or lacquer or other material (44, col. 7 lines 8-12) to provide a smooth surface for printing, and an encoded structure in the surface such that the actual surface is sufficiently

smooth to accept printing ink to enable a security document to be printed thereon, but at the same time contains a fine pattern of less smooth regions, which are less receptive of printing ink.

Regarding Claim 19: Cyr discloses a substrate according to claim 16 wherein selected regions describe a repeat identification pattern by being impregnated with a fluid such as a resin, or lacquer, (44, col. 7 lines 9-12) such that the optical absorption or reflectance characteristics or optical density of the substrate is altered sufficiently as between impregnated and non-impregnated areas as to be discernable under incident light (col. 3 lines 50-59). Since the identification features are invisible the substrate would be discernible under incident light.

Regarding Claim 22 and 23: See the explanation given with regards to claim 1. In addition Cyr acknowledges that the substrate may be a security document (col. 4 lines 39-40).

Regarding Claim 25: Cyr discloses a method of verifying whether a document is a security document wherein a scanning process converts the image data signals for the subsequent control of a printing process (col. 14 lines 50-54) and if the document is verified as a security document, the subsequent printing process is downgraded or inhibited to prevent a good quality reproduction of the document being reproduced (col. 14 lines 55-57). The scanning and detection process

described by Rhoads indicates that the substrate is only considered a security document if it contains watermark data and not until this determination is made.

Claim Rejections - 35 USC § 103

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

18. Claims 5, 6, and 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cyr in view of Shamir (P.N. 5,369,261).

Regarding Claim 5: Cyr discloses the substrate according to claim 1, but does not disclose the features arranged in a 2D matrix in the substrate surface. However, Shamir discloses the features (14, 16, 18, 20, 22, and 24) arranged in a 2D matrix (10) in a substrate surface (col. 2 line 39 – label). It would be obvious to one skilled in the art to arrange the bar codes of Cyr with the matrix format of Shamir because Shamir acknowledges the lack of information contained within traditional bar codes (col. 1 lines 14-19) and explains that matrices overcome this limitation (col. 2 lines 56-59). Furthermore, one would be motivated to combine the references so that the invisible identification features would contain more information making it harder to counterfeit.

Regarding Claim 6: Cyr discloses a substrate according to claim 1, but does not disclose the features arranged in a 2D matrix having a secondary encoding comprising a variation introduced into the matrix, such as by omitting features from particular positions in such a regular matrix. Shamir discloses the 2D matrix as explained with regards to claim 5. Figures 1 and 2 show regions containing varying number of bars. For example, 26 has fewer bars than 28 which has fewer bars than 30 and so on. It is obvious then that there could be a region with even fewer bars than 26 and possibly no bars thereby omitting a region in the matrix. One skilled in the art would be motivated to modify Shamir in order to disrupt the pattern of identification features to increase the difficulty of counterfeiting.

Regarding Claim 7: Cyr discloses a substrate according to claim 1, but does not disclose the features arranged in a 2D matrix having two distinctive types of characteristics, the features of one type being located at one set of positions in the matrix, and the features of the other type being located at other positions in the matrix. Shamir discloses this situation in Figure 1, where different numbers of bars with different directions are placed throughout the matrix. One skilled in the art would be motivated to modify Cyr in view of Shamir to increase the difficulty of counterfeiting by using different identification features within the matrix.

19. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cyr in view of Berson et al. (P.N. 6,039,257). (hereinafter Berson)

Regarding Claim 8: Cyr discloses a substrate according to claim 1, but does not disclose the identification feature providing a primary encoding which will not appear in the electrostatic image of a photocopier. However, Berson does disclose an identification feature with a primary encoding which will not appear in the electrostatic image of a photocopier (col. 2 lines 23-29). Like Cyr, Berson creates a bar code that is invisible to the unaided human eye using a special ink. It would be obvious to one skilled in the art to modify Cyr to utilize the ink disclosed by Berson so as to prevent photocopying. Cyr does not limit his disclosure to be one specific ink, but rather says, "an ink or other appropriate marking composition containing a fluorescing compound" (col. 4 lines 44-45). Berson's ink would certainly fit in this other appropriate marking composition category given its properties (col 3 lines 54-62).

Regarding Claim 9: It was explained above in regards to claim 8 how Cyr would be modified with Berson. In addition, both Cyr and Berson disclose the identification feature encoding in the form of a repeating pattern. The individual bars of Cyr's bar code (16) and Berson's bar code (31) repeat at various intervals to create a bar code.

20. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cyr in view of Berson as applied to claim 8 above, and further in view of Rhoads (P.N. 6,750,985). Cyr and Berson disclose the substrate of claim 8 without any type of embossing. However, Rhoads discloses the identification feature encoding comprising an embossing with inkless intaglio (col. 11 lines 44-51). It would be obvious to combine these prior arts because Rhoads clearly states his invention would be applicable in discouraging the counterfeiting of security documents (col. 1 lines 33-35). Cyr and Berson's inventions also both pertained to prevent counterfeiting or forgery. It makes sense to add an additional feature as provided by Rhoads to ensure greater security.

21. Claims 12, 17, 21, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cyr in view of Rhoads.

Regarding Claim 12: Cyr discloses the substrate according to claim 11, but does not indicate that the substrate would have grooves or one pattern within another. However, Rhoads discloses identification features impressed in the surface of a substrate onto which a security document is to be printed, comprising indentations and/or grooves in accordance with a first pattern which contains encoded therein a second pattern, thereby to enable a security document printed on such a substrate to be identified by subjecting image data signals obtained from scanning the document to an appropriate mathematical algorithm to determine whether the second pattern can be found in image data signals

relating to the first pattern (col. 11 lines 36-44). Rhoads explains that a security document pattern can be printed using an intaglio process, which gives texture to a substrate. While doing so the intaglio process, when used with ink applied to the plate, also creates a second pattern within the first pattern. Rhoads also teaches software, which by definition includes a mathematical algorithm, for detecting the watermarks or identification features from the textured substrate (col. 12 lines 2-4). It would be obvious to one skilled in the art to modify Cyr in view of Rhoads because as Rhoads states, "when designing new security documents, it would be advantageous to facilitate integration of information patterns into the basic design." Adding grooves complicates the process of forging the security document and therefore deters others from attempting to do so.

Regarding Claim 17: Cyr discloses the substrate according to claim 16, however it is not mentioned that the identification features might be embossed. Instead Rhoads discloses the embossing of identification features during the manufacturing of a substrate (col. 11 lines 37-48). Rhoads does not limit his intaglio process to security documents already printed. The intaglio process can be done before the details (any visible print or symbols not part of the identification features) of the security document are printed. The manufacture process is therefore taken to be the period beginning with the creation of the substrate to the time the details of the security document are added. It would be obvious to one skilled in the art to do the intaglio process as part of the

manufacturing so that the visible details of the security document would not be disturbed by the embossing.

Regarding Claim 21: Cyr discloses a substrate according to claim 16, but does not disclose varying the thickness by watermarking. However, Rhoads discloses a substrate comprising watermarking to vary the thickness and/or texture of a substrate, which variations can be rendered visible under incident light and form the primary and/or secondary encoding (col. 12 lines 25-27). Rhoads states that a textured watermark could be created during the paper-making process by high pressure textured rollers. One skilled in the art would modify Cyr in view of Rhoads to increase the difficulty of counterfeiting.

Regarding Claim 24: Cyr discloses a substrate according to claim 22, but does not discuss the ability of a scanner to prevent reproduction or downgrade the quality. Rhoads discloses a first step of verification when a scanning process is employed to convert the image of the surface of the substrate of the document into image data signals for controlling a printing process, (col. 14 lines 50-54) and when surface encoding is detected, a second step of verification is introduced by subjecting the image data signals to an appropriate algorithm, said second step of verification, if failing, serving to downgrade or inhibit the printing process so as to prevent reproduction of the document, or at least a good quality reproduction thereof (col. 14 lines 55-57). One skilled in the art would obviously modify Cyr

with the teachings of Rhoads to prevent reproduction of security documents comprising digital watermarks or similar embedded identification features.

22. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cyr in view of Dalton (P.N. 4,015,221). Cyr discloses a substrate according to claim 16 without mentioning the use of a laser to produce grooves in the surface to be printed. However, Dalton discloses a surface etched as by a laser beam, so as to produce cavities or grooves in the surface to be printed (col. 1 lines 29-31). One skilled in the art would be motivated to produce, with a laser beam, cavities or grooves on a surface of security documents to create a permanent pattern that cannot be easily erased.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Lent et al. (P.N. 5,837,042) is cited for teaching the composition and utility of an invisible fluorescent jet ink.
- Stephany (P.N. 5,331,140) is cited for teaching the detection of invisible code.
- Allen (P.N. 4,480,177) is cited for teaching a currency identification method.
- Auslander et al. (P.N. 5,542,971) is cited for teaching a substrate containing multiple bar codes one of which is invisible.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Craig W Kronenthal whose telephone number is (703) 305-8696. The examiner can normally be reached on 8:00 am - 5:00 pm / Mon. - Fri..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on (703) 306-6604. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CWK
8/13/04

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